

Particle Post May 2012

"Faith is not something to grasp, it is a state to grow into." *M. Gandhi*



Note from the Chair Thomas Roser



The very successful polarized proton run is now followed by an equally successful uranium run at RHIC. EBIS is reliably delivering uranium beams and all six stochastic cooling systems in RHIC are operating very well, especially with the relative low intensity uranium bunches. Congratulations to everybody, especially to Mike Brennan, Mike Blaskiewicz, and Kevin Mernick. It is amazing to see the uranium collision rate growing to three times the initial rate during a store as the beams are being cooled - a first for a particle collider! This bodes well for the upcoming run with copper and gold beams.

To allow time to commission EBIS the Tandems have been delivering beams for NSRL except for beams of noble gases (Helium, Krypton, Xenon) that can only be produced by EBIS. In the meantime the Linac has been delivering record beam intensities to BLIP. RHIC and NSRL will continue to run until the end of June, whereas isotope production will continue until the end of July and maybe even into August.

Administration Stephanie LaMontagne-McKeon



C-AD and RHIC are viewed by many at the Laboratory as one in the same, but those of us in the Department know that we are so much more than RHIC operations. The ARRA funded Horizontal Stochastic Cooling project was completed this year and several other significant accelerator improvements (AIPs) are in process, most notably construction of Electron Lenses and a 56Mhz SRF Cavity. A robust Accelerator R&D program includes the Energy Recovery Linac (ERL), the Gatling Gun, the Large Grain Cavity and the Coherent Electron Cooling (CeC) proof-of-principle experiment. In parallel, efforts to refine the scope, cost and schedule for eRHIC continue. The addition of the Radioisotope Research and Production Program to our portfolio brought many new operations challenges and planning exercises for both a Cyclotron Isotope Research Center (CIRC) and various LINAC upgrades. Additionally, work for others (WFO) funding in the current year is substantial and includes NASA funding for the operation of NSRL, funding from the Office of Naval Research for completion of the ERL and funding from Best Medical for R&D on a carbon-proton cancer therapy facility (C-PCTF). All of these efforts require some level of cost estimation and budget development, and the Administrative Group provides 2 varieties of that.

Cost plans and Proposals: These estimates are prepared by Susan Pankowski and her staff. Cost plans are developed annually for Programs, defined as ongoing operations efforts such as RHIC and NSRL, and as needed for a myriad of WFO proposals as well as LDRD and Program Development proposals.

Susan offers the following guidance to those responsible for the preparation of a cost plan:

In order to ensure that all appropriate costs, burdens, overheads and contingencies are included in your cost plan, it is critical that a member of the C-AD Administrative Group be involved in the preparation. Questions that need to be addressed in order to prepare a cost plan/estimate include:

- What is the expected duration of the planned effort?
- What level of staffing is needed and for how long?
- What kinds of materials or outside services do we need to purchase for the job?
- Do we need any special services from F&O, such as electricians or riggers, or central shops?

The level of detail required for cost estimates depends upon the scope of the work to be performed. It's important to remember

that a cost plan/estimate must include not only the direct costs for labor and material purchases, but the indirect costs as well. Indirect costs include things such as material handling burden, departmental burdens, and laboratory overheads.

When preparing a cost plan for a proposal, the inclusion of contingency is critical. Contingency is added to a cost estimate to cover unanticipated costs that may arise during the project and should be consistent with the level of uncertainty or risk. Contingency amounts may be estimated as a percentage of total cost, a fixed dollar amount, or other reasonable method.

Please contact Sue Pankowski at x7270 if you have any questions or need assistance in preparing a cost plan or proposal estimate.

Capital Assets and Major Items of Equipment (MIE) – This is DOE-speak relating to projects – defined as a temporary endeavor with a unique objective, with defined beginning and end, and typically larger in value and longer in duration than the Cost Plan & Proposal items. RHIC itself was a project while being designed and built, and became a program once commissioned. Kerry Mirabella and Bob van Wormer provide the Project Management expertise needed for C-AD Projects, which will be discussed in more detail here next month.

Accelerator Division Wolfram Fischer



Like the 100 GeV part, the 250 GeV part of the RHIC polarized proton Run-12 ended very successfully. New records were set for the peak and average luminosities, and the polarization. In only 5 weeks 40% more events were generated for the experiments than in the previous Run-11 with 10 weeks. The failure rates of all systems remained low, giving us excellent machine availability. Congratulations again to Vincent Schoefer and his team.

Yun Luo took over from Vincent as Run Coordinator, and we are now colliding uranium beams, the heaviest element ever used in a collider. The uranium beams only became available with the new Electron Beam Ion Source. The last few days saw a dramatic increase in the luminosity due to stochastic cooling. We now have stores with a peak luminosity 2x higher than the initial luminosity. This too has never been seen before in a hadron collider. Congratulations to Mike Brennan, Kevin Mernick, Mike Blaskiewicz and their support team for this outstanding success. Meanwhile the RF group and Keith Zeno are hard at work increasing the uranium bunch intensity in the Booster and AGS, with a plan for another “merge”, which would double the intensity.

Experimental Support & Facilities Division Phil Pile



The PHENIX and STAR experiments are now into their second week of physics with 96 GeV/n on 96 GeV/n uranium. Uranium beam collisions is a first for RHIC, made possible by our new EBIS, Electron Beam Ion Source. Although the per bunch beam intensity is a bit below expectations, stochastic cooling is working very well resulting in luminosities per store that should allow both experiments to meet or exceed their goals. Uranium is heavier than gold and comes with an elliptical shaped nucleus, thus allowing for collisions that involve more nucleons than possible with gold-gold collisions. The uranium run will be short and is scheduled to end next Wednesday. At that time we'll make the switch to 100 GeV/n on 100 GeV/n copper-gold, another first for RHIC. The Cu-Au physics segment of Run 12 will last for about 5 weeks. If time permits we may devote a couple of days to the development of collisions using very low energy, 2.5 GeV/n on 2.5 GeV/n, gold beams. Our plan is to begin warm-up of the RHIC magnets on Monday, 25 June and then begin our summer/fall shutdown activities with the aim to begin Run 13 on 1 January 2013.

NSRL has officially ended the “spring” NSRL-12A run. The NSRL facility, however, is still operational this week with National Reconnaissance Office (NRO) experiments aimed at testing the survivability of electronics used in reconnaissance satellites. The NSRL “summer” run will begin Wednesday, 16 May and run until near the end of June with NRO experiments scheduled to run the last three days of June. NASA is making plans for a test later this month of using low energy boron and iron beams direct from the Tandem for radiobiology experiments. If successful, this could result in a new user for the Tandem accelerators.

The BLIP facility continues to operate without any significant issues. The present plan is to run the Linac for BLIP through July so the BLIP facility and the Linac will be operational during the first month of our RHIC summer shutdown.

Accelerator R&D Division Ilan Ben-Zvi



The installation of the cryogenic lines to the ERL cryomodules is underway. The process welds were completed the week of April 16-20. The pressure testing and process line leak checks were executed the week of April 23-28. The vacuum jacket welds and jacket leak tests will take place the week of April 30

thru May 4.

Due to safety considerations, other work in the ERL is suspended in the block house until this work is complete.

In ERL instrumentation, the last 4 of the 5 three position profile monitors are in the clean room for processing; the particle count of one unit was well below the limits. The Large Grain Gun cryomodule, cavity, temperature sensors, and other instrumentation was moved into the Small Vertical Test Facility (SVTF) and connected. A final safety review of the experiment was conducted and final action items from the review were completed. The first test for the large-grain program was scheduled for Wednesday, 2 May.

The polarized electron gun team is preparing for an external review of the Gatling Gun project, which is scheduled for June 28-29, 2012. The international review committee comprises Prof. Kurt Aulenbacher, Mainz, Germany (Chair), Dr. Axel Brachtmann, SLAC, Dr. Hsiao-Chaun Hseuh, BNL and Dr. Matthew Poelker, JLab.

Operations Paul Sampson



The CAD complex continues to successfully run in ever-changing configurations for the various needs of users and for Accelerator Development.

Following an extremely successful 510GeV cm polarized proton run at RHIC, the setup for the first U/U run began. Despite many challenges, including numerous LIPA outages, RF reconfiguration for the Booster and AGS and an EBIS vacuum issue, the setup was very successful. Uranium Physics is presently running smoothly in RHIC as improvements continue to result in higher luminosity. Major increases were observed when transverse and longitudinal Stochastic Cooling was commissioned and made operational and as injector performance improves.

Accelerator Studies (APEX) and Maintenance periods continue on alternate Wednesdays. During the Uranium Run, these efforts are focused on performance.

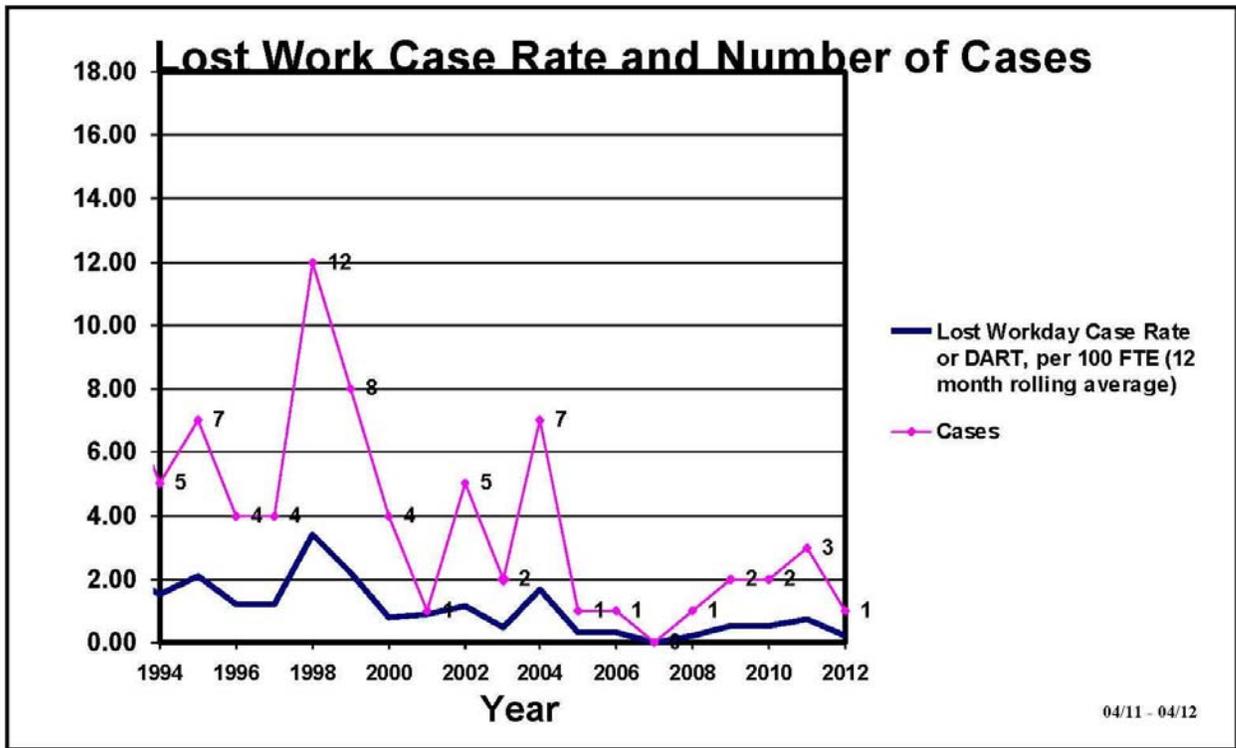
Injector development continues behind stores and when possible on Maintenance Days. Continued improvement of the Uranium beam and development of noble gas ions, for use at NSRL, is ongoing and utilizes beams from the EBIS source. .

NSRL run 12a has continues with ions provided from both EBIS and Tandem and protons from the LINAC. Many different species from EBIS have been successfully injected and accelerated in the Booster including Tantalum, Krypton, Uranium and Gold. Several of these species have been extracted to the AGS for setup or to the NSRL target room for experimental users. During the week of May 7th, NRSL will be running expressly for NRO, with the expectation they become a frequent user of the facility.

LINAC continues to run protons for NSRL and BLIP. BLIP is running very well with high intensity and reliability.

For updates on the weekly schedule see: [This Week](#)

Safety Stats



C-AD Occupational Injury Statistics

	For Year 2011	For Year* 2012
First Aid Cases	4	1
Recordable Cases	3	0
Lost Work Cases	3	0

* Calendar Year through 4/12

REMINDER: TLD exchange is done the *FIRST FRIDAY* of the Month.

EXCHANGE DATE: FRIDAY, June 1, 2012

Pete Cirnigliario



ARRIVALS

John Benante joined the department on April 9 as a Technician working with Paul Sampson in the Machine Operations Group.

Kevin Kobasiuk joined the department on April 9 as a Technician working with Paul Sampson in the Machine Operations Group.

Joseph Sanfilippo joined the department on April 9 as a Technician working with Paul Sampson in the Machine Operations Group.

WELCOME!**DEPARTURE**

Xavier Buffat, Accelerator Division ended his Research Collaborator appointment on April 13.

Anthony DeGraffenreid, Medical Isotope Group ended his Research Collaborator appointment on April 13.

Paul Goergen, Accelerator Division ended his Guest Research Assistant appointment on April 13.

Ryan Larkin, Maintenance Support Group left the lab on May 4.

Keren Li, SRF Group will be leaving the lab on May 31.

GOOD LUCK!

Inside RHIC. Please click on link to the left to view the latest web publication of Inside RHIC.



*We wish all of you born in **May**
a happy and healthy year ahead.
Birthday people **ONLY** click on cake*



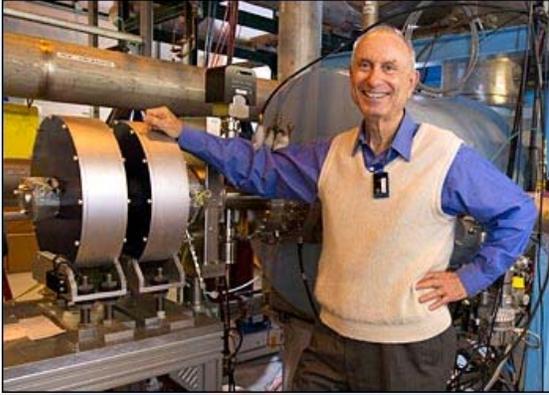
Do You Have Any Recent or Upcoming Graduates? If so, please let me know and I will include in our newsletter.

**DID YOU KNOW**

By [Natalie Crnosija](#) | April 16, 2012

Energy Recovery Linear Accelerator: A Unique Accelerator that Reclaims Energy

In Brookhaven's present and future, the very green ERL is poised to play a prominent role individually and as a support for larger scientific accelerators



Ilan Ben-Zvi with the soon-to-be-completed .02 GeV ERL.

Particle accelerators are hardly known for their minimal energy requirements. But by the end of 2013, BNL's Collider-Accelerator Department (C-AD) will have completed an Energy Recovery Linear Accelerator (ERL), a unique type of accelerator that recycles the energy it uses to accelerate electrons.

An ERL, like many linear accelerators, produces a dense particle beam with high brightness, or high-density packing in multi-dimensional space. This beam is created by an electron-producing photo-cathode, and is then injected into a superconducting radio frequency cavity to accelerate the beam from its initial energy. In a traditional linear accelerator, also called a LINAC, this beam would be accelerated and strike a target, while the abundant leftover electrons and all of their energy would be subsequently absorbed in a massive beam dump.

"If the current and energy of the LINAC are very high, it means that you are wasting a lot of power," said Ilan Ben-Zvi, head of C-AD's Accelerator R&D division and leader of the ERL project.

Greatly Less Energy

An ERL avoids the waste of dumping a fully energized beam. In a simple ERL, the beam is injected into a superconducting accelerator. Once the beam is used, typically having been circulated around a ring with the help of magnets, its energy can be recovered by using the same superconducting cavities to decelerate the leftover beam electrons before they are dumped. In a complex, high-energy ERL, the beam circulates multiple times among a series of accelerators, each of which is specifically phased to elevate the beam to an incrementally higher energy. By passing the beam multiple times through these accelerator sections — the number of times depends on the ERL's desired maximum energy — a highly energized beam can be generated without requiring a high initial energy from the beam injector. Thus, significantly less energy is needed up-front to create the beam. The complex ERL follows the same beam deceleration process after the beam's use, saving a substantial amount of energy.

This level of energy conservation is more typically found in storage rings, which circulate a beam of particles for long periods of time without losing much energy. In storage rings, however, beam brightness is determined by an equilibrium process balancing synchrotron radiation — a byproduct of particle acceleration that causes beam energy loss — with the continual add-back of energy from the beam passing through the accelerating cavities on each turn around the ring. The beam brightness from a good electron gun can be higher.

Beam Quality Maintained

"The great advantage of an ERL is that it allows you to maintain the beam quality of a straight LINAC but maintain current and energy as storage rings do, so it combines sort of the best of all worlds," said Ben-Zvi.

An ERL's energy efficiency is also due to the presence of superconducting radio frequency cavities in the accelerators, a technology that is fundamental to modern accelerators. Superconducting cavities allow the generation of large accelerating fields with a minuscule investment of power. The cavities can serve multiple purposes — accelerating the beam, maintaining the beam bunch sizes, and also making up for the energy lost to synchrotron radiation. The cavities, crafted from niobium and maintained at about two degrees Kelvin, are able to carry current with extremely low resistance, thereby minimizing energy loss and reducing the cost of using such accelerators.

The soon-to-be-completed, small-scale, .02-billion-electron-volt (GeV) single-pass ERL is the first of its kind at BNL. But in a decade or so, a powerful multi-pass, up-to-30-GeV ERL could be a key electron source for an electron-ion collider, such as the one proposed for construction at the Relativistic Heavy Ion Collider, known as eRHIC.

"If eRHIC is to be a success, it needs the ERLs and, therefore, ERLs are very much part of the future of Brookhaven," explained Ben-Zvi. "What we're trying to create is an Energy Recovery LINAC much, much more powerful than anything that

exists or is even planned anywhere.”

The ERL technology might also be applied to another accelerator project designed to “cool” RHIC’s ions and protons. This cooling condenses the beam, which then produces more luminous collisions — and more data.

“As part of my work on eRHIC, I realized that the luminosity would be much improved if you used electron cooling at RHIC,” said Ben-Zvi. “And electron cooling would also require an ERL. So the ERL was just everywhere in this machine. There are multiple applications in many fields of science for such a device.”

The .02 GeV ERL’s construction is being supported by the Department of Defense’s Joint Technology Office and Office of Naval Research, DOE’s Office of Nuclear Physics, the Small Business Innovation Research program and Brookhaven Science Associates patent revenue funding.

By [Justin Eure](#) | April 19, 2012

Brookhaven Lab Physicist Vitaly Yakimenko Receives IEEE Particle Accelerator Science and Technology Award



Physicist Vitaly Yakimenko in the control room of Brookhaven’s Accelerator Test Facility.

UPTON, NY - The Institute of Electrical and Electronics Engineers/Nuclear and Plasma Science Society has honored Brookhaven physicist Vitaly Yakimenko with the 2012 Particle Accelerator Science and Technology Award. IEEE, the world’s largest professional association dedicated to technology innovation, recognized Yakimenko for outstanding “contributions to high-brightness electron beams and their application to advanced accelerators and light sources.” He will receive the award at the 2012 International Particle Accelerator Conference on May 24 at the Morial Convention Center in New Orleans.

“I was surprised and excited to hear about this honor,” said Yakimenko, who became the director of Brookhaven’s Accelerator Test Facility (ATF) in 2005. “It’s wonderful to know that people are paying attention to the work we do at Brookhaven. I am thankful to my collaborators at the ATF and the large community of visiting scientists who helped drive these innovations in fundamental research.”

Yakimenko dedicates much of his research at Brookhaven Lab to developing very bright beam sources and advanced particle accelerators. IEEE/NPSS honored his work measuring electron beam “phase space” — a mathematical description of all possible beam positions and momentums — which helped identify problems and correct them with new beam-stabilization methods. When accelerated at facilities such as Brookhaven’s National Synchrotron Light Source (NSLS), electron beams generate high-energy photons used to probe materials at the atomic level. Yakimenko’s research helped improve NSLS technology and push fundamental research in everything from alternative energy sources to biology.

Before he joined Brookhaven Lab, Yakimenko performed research calculating particle spin dynamics, which led to accurate beam polarizations — orienting particles in a beam so that their spins are aligned in a particular direction — in major high-energy particle accelerators, including Brookhaven’s Relativistic Heavy Ion Collider (RHIC), Germany’s Hadron-Electron Ring Accelerator (HERA), and CERN’s Large Electron Positron collider (LEP). Yakimenko has also developed breakthrough techniques in laser manipulation, such as sub-micron beam emittance from radio-frequency photoinjectors and the observation of mono energetic ion beams produced with a CO₂ laser pulse.

“Brookhaven is very diverse – there’s no time to get stuck on something when you’re surrounded by this constant flow of new ideas and results,” Yakimenko said. “I am always stimulated by the accomplishments of my colleagues and the opportunity to tackle multiple challenges at the same time.”

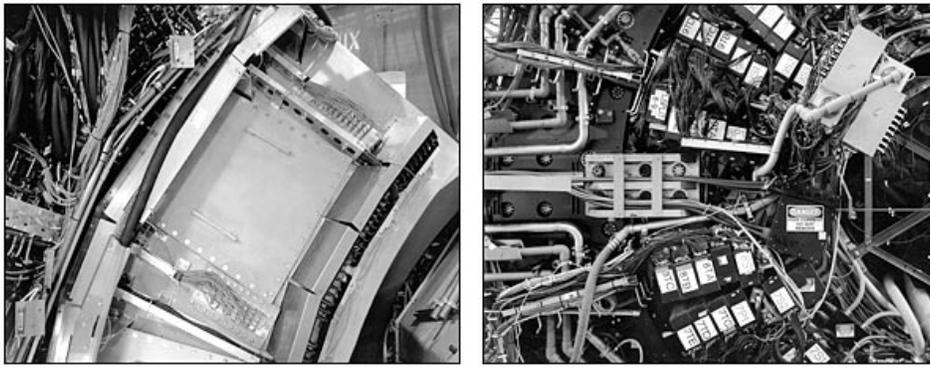
Yakimenko currently juggles around 15 ongoing projects, which he called the usual workload, ranging from experimental design to organizing the meetings for Brookhaven accelerator facility users.

Yakimenko earned his Ph.D. in physics from the Institute for Nuclear Physics in Novosibirsk, Russia. Before joining Brookhaven in 1996 as a research associate, he worked at the GSI heavy ion research center in Darmstadt, Germany and at the German Electron Synchrotron (DESY) in Hamburg.

By [Jane Koropsak](#) | April 23, 2012

Quirky Photos

In his latest book, *Time Machines*, New York-based photographer Stanley Greenberg seems to capture the soul of particle physics with uncharacteristic black-and-white images, including shots that showcase the mass of intertwining wires and piping inside the STAR and PHENIX detectors at Brookhaven Lab’s [Relativistic Heavy Ion Collider](#).



Photos: Copyright Stanley Greenberg

Greenberg traveled the world to gather images of high tech scientific gadgetry and complex machines — including accelerators, colliders, detectors, and spectrometers — built to explore fundamental physics. Images include machinery designed to recreate conditions of the Big Bang, reveal the Higgs boson particle predicted by the Standard Model, and delve into the world of muons, neutrinos, and quarks.

Greenberg’s photos have been exhibited at the Metropolitan Museum of Art, the Whitney Museum of American Art, and the Art Institute of Chicago. Reviews of his work have appeared in *The Wall Street Journal*, *The New York Times*, and *The New Yorker*. Greenberg is also the author of *Invisible New York*, *Waterworks*, and *Architecture Under Construction*.

By [William Safer](#) | May 7, 2012

It Pays to Investigate Ridesharing at Brookhaven Lab

The price per gallon of regular gas on Long Island averages \$4.05, so if drivers weren’t sure about ridesharing before now, maybe the growing cost will inspire a look at how to split their commuting burden with colleagues.

Jeff Williams, a project engineer in the Lab’s Environmental Protection Division, administers Brookhaven’s rideshare program, which he said has a new level of interest, especially after new promotions announced during Earth Week.

“We’ve had employees signing up for ridesharing to take advantage of the 511NYRideshare Carpool Challenge being offered by MetroPool, a state-sponsored commuter incentive,” he explained. “Through

June, it is offering a \$25 Dunkin Donuts gift card to people who carpool to and from work four or more times in one month. Even if you share a ride just once a week, you'll still get the prize. The objective is to encourage people who normally commute alone to try carpooling in the hope they'll enjoy the experience and continue carpooling."

A bigger prize, Williams said, comes over time, when ridesharing commuters add up the cost savings in fuel as well as 'wear and tear' on their cars. He said it takes just a minute to use [511NYRideshare's cost calculator](#).

"With gas prices on the rise almost monthly, that calculator makes a more powerful argument all the time," he added.

Signing up for the Lab's rideshare program is easy – just go to <http://www.bnl.gov/rideshare/>. Once you're done signing up, the registration for the Carpool Challenge takes just a minute, [starting with this form](#), which must be returned to jwilliams@bnl.gov.

The one concern Williams said he hears the most is from people who fear being stuck at work without a way home if they're not able to meet their rideshare partners in time at the end of the day.

"But that's not a problem with 511NY Rideshare's Guaranteed Ride Program," he said. "When emergencies and unexpected situations come up, the Guaranteed Ride Program will provide you the ride you need. It is easy to use and there's no cost." To learn about this part of the program, go to <http://www.bnl.gov/rideshare/rideservice.asp>.

According to Williams, one of the added benefits of working at a place as large as Brookhaven Lab is having so many coworkers coming from all parts of Long Island – and even from as far as New York City.

"There's bound to be someone near you who is also looking for a rideshare partner," he said.

If the web pages don't have enough information, or if you just need a little more convincing, Williams said he's happy to receive a phone call to talk about concerns and opportunities. He can be reached at Ext. 5587 or jwilliams@bnl.gov.



FUN TIME

Face Memory - See how well you can do in trying to remember a random face. Addictive! Please click [here](#).



Folks,

Once again, I'd like to thank everyone at C-AD for your continued support, donations and contributions that you so freely give to the Food Drive throughout the year. It means a lot to so many families.

If everyone can bring in at least one non-perishable food item, this would help the local food pantries in our area. There are so many families who are in need of food and depend on their local food pantry to have at least one meal a day. With the food supply so low, the volunteer's who help out

*at our local food pantries can't help those in need. So please.....
bring whatever you can to replenish the food supply for those in need.*

*Your donation of any non-perishable food item can be left in the box
marked "Food Drive" located in the 911A Lobby.*

Your continued support is appreciated.

Thank you.

Anne Marie Luhrs

From: Carter, Christine B
Sent: Monday, April 30, 2012 8:32 AM
Subject: BERA Update 4-30-12

www.bnl.gov/bera

FITNESS:

Gym, Pool, Swimming Lessons, Fitness classes, NEW discounts, \$5 Friday Family Swim night 5:15-8:30pm,

Join the BERA Weight Room & you'll have 2 free personal consultations available each month:
May= 8 & 17 from 5-7pm!

Summer Softball Teams are ready to start- join today!

Register now for the last fitness sessions for Spring/Summer

BERA STORE 9am-3pm Monday-Friday in 488 Berkner:

BERA will again have discount Splish Splash & Atlantis Marine World tickets, \$8.50 movie tickets, conference & meeting supplies, souvenirs; shirts/jackets/hats/shot glasses, pen sets, pad-folios, toys, and a great assortment of greeting cards-all at the BERA Store!

TRIPS/EVENTS: www.bnl.gov/bera/recreation/events.asp for all rules/requirements

BELMONT Stakes Sat. 6/9, ***NASCAR***, ***Super Nationals at Englishtown***,

(NY City & Atlantic City-both on 5/5 - are sold out, but we are taking wait list names)

BASEBALL: all prices include luxury bus, ticket & driver tip. All are 7pm games. Rules:

www.bnl.gov/bera/recreation/events.asp

METS 50 tickets per game-ALL in Pepsi Porch; **Tickets will go on sale on Friday May 11. Limit 4 tickets per person, per game**

Friday July 20 vs. LA Dodgers \$46pp

Friday Aug 24 vs. Houston Astros \$46pp

Friday Sept 21 vs. Miami (Fla) Marlins \$37pp

YANKEE *54 tickets per game; Tickets will go on sale Friday May 18. Limit 4 tickets per person, per game.*

Friday June 29th vs. White Sox Sect. 307 \$35pp

Friday August 3 vs. Seattle Mariners Sect. 233A \$37pp

Friday August 31 vs. Toronto Blue Jays Sect. 434B \$20pp

Thursday Sept. 20 vs. Toronto Blue Jays Sect. 434A \$20pp

Bulletin: <http://www.bnl.gov/bnlweb/pubaf/bulletin/default.asp>

The Well Workplace Healthletter Learn about vision health and how to plan new healthy routines in [the May issue.](#)



ASIAN PACIFIC AMERICAN HERITAGE MONTH

*In celebration of Asian Pacific American Heritage Month,
the BERA Asian Pacific American Association invites you to join us at the following events.*

SATURDAY, MAY 12th
Asian Pacific American Heritage Month Celebration
 1:00 pm – 6:00 pm,
 Charles B. Wang Center, Stony Brook University

The 4th annual celebration of Asian Pacific American Heritage Month at the Wang Center is co-sponsored by multiple local groups, including BNL, and hosted by the Suffolk County Office Asian American Advisory Board. There will be dance, music, and vocal performances from ten Asian countries, multi-cultural booths with arts and crafts displays, workshops, and the presentation of awards.

This year, Dr. Triveni Rao, senior physicist, was nominated by the BNL APAA for an award and has been selected to be honored at this event as a distinguished Asian American professional. She will be presented with a proclamation by the Suffolk County Executive during the 4:30pm theater performance. Please join us at this event in congratulating Dr. Rao for this recognition! For more information, go to:

http://www.scaaab.org/2012_asian_pacific_american_heritage_month_celebration/about_the_festival

FRIDAY, MAY 18th
Invitation to a Vietnamese Recital
 12:00 pm – 1:00pm, Berkner Hall Auditorium

Join us at noon for an hour of Vietnamese culture. Included are Vietnamese traditional dances by a student group followed by musical pieces played on a Vietnamese string zither, a 16-stringed instrument which resembles a bamboo tube that has been sliced vertically in half. Afterwards, immerse yourself through film in the wonder and beauty of a traditional country with 4,000 years of culture and history.

FRIDAY, MAY 25th
“China Showcase”
 4:30 pm – 5:30 pm, Berkner Hall Auditorium

Complete your work week at our “grand finale” alive with music, dance, and oratory performances by professionals and local artists in this special program dedicated to the unique culture of China. Indulge your senses with the warmth of traditional Chinese folk arts to the electrifying avant-garde interpretations of this ancient art form. For more information, contact Joanne Beebe-Wang at bbwang@bnl.gov (ext. 3646) or Wei Chen at weichen@bnl.gov (ext. 4213).

NOTE: This event is FREE and open to the public. Government-issued identification documents, which includes a photograph, such as a passport or driver's license is required for site access for those 16 years of age and older.

*Check our website for up to date information about our upcoming Asian Pacific American Heritage month events,
go to <http://www.bnl.gov/bera/activities/apaa/>*

BROOKHAVEN
 NATIONAL LABORATORY



ALUMNI NEWS: AGS/RHIC/C-AD RETIRED CROWD - We'd enjoy hearing from you and what you have been up to. Please send your notes to pmanning@bnl.gov

Subject: RE: Ed Dale

Date: May 4, 2012 2:51:58 PM EDT

Services for Ed Dale

Sunday 5/6 2 to 4pm 7 to 9pm

Maloneys Lake Funeral Home

132 Ronkonkoma Ave

Lake Ronkonkoma, NY 11779

Monday 5/7 10:30am Priest and goodbye

same location

Subject: Ed Dale

I was just informed by Ed Dales son that Ed passed away this morning after a 6-month battle with Leukemia. When I hear about arrangements I will pass it on.....Ralph



You can catch up on all of Eric Forsyth's travels by clicking on his sailing yacht below.





new **May 2012**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5 Office of Educational Programs Event "BNL Science Fair 2012", 9am, Berkner
6	7	8 Physics Colloquium "Studies of Proton and Nuclear Structure via Measurements at Forward Rapidity", Mickey Chiu, BNL, 3:30pm, Bldg. 555, Hamilton	9	10	11	12
13 Mother's Day	14	15 Physics Colloquium "Physics Prospects and Status of SuperKEKB/Belle II", Yoshihide Sakai, KEK, 3:30pm, Bldg. 555, Hamilton	16	17 BWIS Colloquia Series, Petra Huntemeyer, 4pm, Berkner	18	19  Armed Forces Day
20	21	22 Physics Colloquium "The Evangelical Rejection of Reason", Karl Giberson, 3pm, Bldg. 555, Hamilton	23	24 Brookhaven Lecture, Dario Arena, BNL, 4pm, Berkner	25	26
27	28  Holiday	29	30	31		



June 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5 Physics Colloquium "Developing Laser-Driven Ion Beams for Medical Applications", Igor Pogorelsky, 3:30pm, Bldg. 555, Hamilton	6	7 BWIS Colloquia Series, "Surfing with Wavelets", Ingrid Daubechies, 4pm, Berkner	8	9
10	11	12	13	14	15	16

						
				Flag Day		
17 Father's Day	18	19 Physics Colloquium "TBA", Iken Drill, SBU, 3:00pm, Bldg. 555, Hamilton	20 Summer Begins C-AD Annual BBQ, Noon, Gazebo Brookhaven Lecture, Jorg Schwender, BNL, 4pm, Berkner	21	22	23
24	25	26	27	28	29	30



We Remember
Sept. 11, 2001

USS New York - A ship forged from the steel of the World Trade Center

Editor: Pamela Manning **x4072**